

We claim:

1. A compound, represented by the general formula



and physiologically acceptable salts, including isomers and stereoisomers, wherein:

A comprises a radical selected from one of the formulae Y, YR¹, R¹Y, R¹YR⁴, R¹OY, YOR¹, R¹YOR² or R¹OYOR²;

W comprises a radical of the formulae R³Q or a C4 to C7 non-aromatic heterocycle containing a nitrogen heteroatom wherein said heterocycle comprises at least one heteroatom independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterocycle can be substituted with one or more substituent groups;

Y comprises a carbocyclic ring, a carbocyclic ring comprising at least one substituent group, a fused bicyclic ring system, a fused bicyclic ring system comprising at least one substituent group, a bridged bicyclic ring system, a bridged bicyclic ring system comprising at least one substituent group, a bridged tricyclic ring system, a bridged tricyclic ring system comprising at least one substituent group, a heterocyclic ring, a heterocyclic ring comprising at least one substituent group, an aromatic system or an aromatic system comprising at least one substituent group, a heteroaromatic system or a heteroaromatic system comprising at least one substituent group;

X comprises a valency bond, a methylene group (-CH₂-) or a heteroatom selected from nitrogen, oxygen, sulfur;

R¹ comprises any possible member selected from a carbocyclic ring having about 3 to about 7 ring members, a heterocyclic ring having about 4 to about 7 ring members, an aromatic ring having about 5 to about 7 ring members, a heteroaromatic ring having about 5 to about 7 ring members; or any above group comprising a substituent group on at least one available ring atom, an about C3 to about C20 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain, an about C3 to about C20 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising one or more independently chosen heteroatoms, an about C3 to about C20 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising at least one independently chosen possible member selected from a carbocyclic ring having about 4 to about 7 ring members, a heterocyclic ring

having about 4 to about 7 ring members, an aromatic ring having about 5 to about 7 ring members, a heteroaromatic ring having about 5 to about 7 ring members; or any above member comprising a substituent group on at least one available ring atom, or any above about C3 to about C20 hydrocarbon chain having at least one independently chosen substituent group;

R² comprises any possible member selected from a carbocyclic ring having about 3 to about 7 ring members, a heterocyclic ring having about 4 to about 7 ring members, an aromatic ring having about 5 to about 7 ring members, a heteroaromatic ring having about 5 to about 7 ring members; any above group comprising a substituent group on at least one available ring atom, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising one or more independently chosen heteroatoms, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising at least one independently chosen possible member selected from a carbocyclic ring having about 4 to about 7 ring members, a heterocyclic ring having about 4 to about 7 ring members, an aromatic ring having about 5 to about 7 ring members, a heteroaromatic ring having about 5 to about 7 ring members; or any above member comprising a substituent group on at least one available ring atom, or any above about C2 to about C5 hydrocarbon chain having at least one independently chosen substituent group;

R³ comprises any possible member selected from a carbocyclic ring having about 3 to about 9 ring members, a heterocyclic ring having about 4 to about 9 ring members, an aromatic ring having about 5 to about 9 ring members, a heteroaromatic ring having about 5 to about 9 ring members; any above group comprising a substituent group on at least one available ring atom, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising one or more independently chosen heteroatoms, an about C2 to about C5 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising at least one independently chosen possible member selected from a carbocyclic ring having about 4 to about 7 ring members, a heterocyclic ring having about 4 to about 7 ring members, an aromatic ring having about 5 to about 7 ring members, a heteroaromatic ring having about 5 to about 7 ring members; or any above member comprising a substituent group on at least one available ring atom, or any above about C2 to about C5 hydrocarbon chain having at least one independently chosen substituent group;

R^4 comprises any group independently selected from R^1 or R^2 ; and

Q comprises an ammonium group, wherein said ammonium group can be substituted one or more times with a C1 to C6 alkyl radical, or comprises a C3 to C7 heterocycle containing a nitrogen heteroatom which is bonded to the R^3 group, wherein said heterocycle can contain one or more heteroatoms independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterocycle can be substituted with one or more substituent groups, a heterobicyclic ring containing a nitrogen heteroatom which is bonded to the R^3 group, wherein said heterobicyclic ring can contain one or more heteroatoms independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterobicyclic ring can be substituted with one or more substituent groups, a heterotricyclic ring containing a nitrogen heteroatom which is bonded to the R^3 group, wherein said heterotricyclic ring can contain one or more heteroatoms independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterotricyclic ring can be substituted with one or more substituent groups. Advantageously the substituent groups are independently selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, alkoxy, alkoxy carbonyl, alkylthio or amino.

2. The compound of claim 1, wherein A comprises YR^1 , R^1YOR^2 or R^1OYOR^2 .
3. The compound of claim 1, wherein the W comprises a C4 to C7 non-aromatic heterocycle containing a nitrogen heteroatom wherein said heterocycle comprising at least one heteroatom independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterocycle can be substituted with one or more substituent groups independently selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, alkoxy, alkoxy carbonyl, alkylthio or amino.
3. The compound of claim 1, wherein X comprises an oxygen atom.
4. The compound of claim 1, wherein R^1 comprises an about C3 to about C20 saturated or unsaturated, straight or branched, aliphatic hydrocarbon chain comprising a substituent group on at least one available ring atom, wherein the substituent groups are independently selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, alkoxy, alkoxy carbonyl, alkylthio or amino.

5. The compound of claim 1, wherein R² comprises a C2 saturated or unsaturated alkyl or alkenyl, a C2 saturated or unsaturated alkyl or alkenyl which can be substituted with one or more substituents selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, alkoxy, alkoxy carbonyl, alkylthio and amino.
6. The compound of claim 1, wherein R³ comprises a C2 saturated or unsaturated alkyl or alkenyl, a C2 saturated or unsaturated alkyl or alkenyl which can be substituted with one or more substituents selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, arylalkyl, alkoxy, alkoxy carbonyl, alkylthio and amino or a C3 to C8 cycloalkyl which is bonded at C1 to the oxygen and at C2 to Q.
7. The compound of claim 1, wherein Q comprises a C3 to C7 heterocycle containing a nitrogen heteroatom which is bonded to the R³ group, wherein said heterocycle can contain one or more heteroatoms independently selected from nitrogen, oxygen, sulfur and combinations thereof, and wherein said heterocycle can be substituted with one or more substituent groups, independently selected from hydroxyl, halogen, alkyl, cycloalkyl, aryl, alkoxy, alkoxy carbonyl, alkylthio or amino.
8. The compound of claim 1, wherein R¹ comprise a C5 to C18 alkylidene group or C5 to C18 alkyl group.
9. The compound of claim 1, wherein R¹ comprises pentylidene, undecylidene, dodecylidene, tetradecylidene, hexadecylidene, pentyl, undecyl, dodecyl, tetradecyl or hexadecyl groups.
10. The compound of claim 1, wherein Y comprises a C3 to C6 carbocyclic ring, a substituted carbocyclic ring, a bridged tricyclic ring system, a substituted bridged tricyclic ring system or an aromatic ring.
11. The compound of claim 1, wherein Y comprises cyclohexyl, adamantyl or phenyl.
12. The compound of claim 1, wherein R² comprises a C2 saturated alkyl.

13. The compound of claim 1, wherein Q comprises trimethylammonium, N-methylmorpholinio or N-methylpiperidinio.

14. The compound of claim 1, wherein:

A comprises R¹YOR²;

W comprises R³Q;

X comprises oxygen;

Y residue comprises a carbocyclic ring, a substituted carbocyclic ring, a bridged tricyclic ring system, or a substituted bridged tricyclic ring system;

R¹ comprises a C12 to C18 alkylidene group or C12 to C18 alkyl group;

R² comprises a C2 saturated alkyl;

R³ comprises a C2 saturated alkyl; and

Q comprises an ammonium group, wherein said ammonium group can be substituted one or more times with a C1 to C6 alkyl radical, or comprises a C3 to C7 heterocycle containing a nitrogen heteroatom which is bonded to the R³ group, wherein said heterocycle can contain one or more heteroatoms selected from nitrogen, oxygen or sulfur, and wherein said heterocycle can be substituted with one or more independently chosen substituents.

15. The compound of claim 1, which comprises at least one of 1-{2-{{(4-Dodecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-{{(4-Dodecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-methylpiperidinium inner salt; 1-{2-{{(4-Dodecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-methylmorpholinium inner salt; 1-{2-{{(4-Tetradecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-{{(4-Tetradecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-ethylpiperidinium inner salt; 1-{2-{{(4-Hexadecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-methylmorpholinium inner salt; 1-{2-{{(4-Hexadecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-{{(4-Hexadecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-

methylpiperidinium inner salt; 1-{2-{{(4-Hexadecylidenecyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-1-methylmorpholinium inner salt; 1-{2-{{(4-Dodecylcyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-N,N,N-trimethylammonium inner salt; or 1-{2-{{(4-Tetradecylcyclohexyloxy)ethyloxy]hydroxyphosphinyloxy}ethyl}-N,N,N-trimethylammonium inner salt.

16. The compound of claim 1 wherein

A comprises YR¹;

W comprises R³Q;

X comprises oxygen;

Y residue comprises a carbocyclic ring, a substituted carbocyclic ring, a bridged tricyclic ring system, a substituted bridged tricyclic ring system or an aromatic system;

R¹ comprises a C5 to C18 alkylidene group or C5 to C18 alkyl group;

R³ comprises a C2 saturated alkyl; and

Q comprises an ammonium group, wherein said ammonium group can be independently substituted one or more times with a C1 to C6 alkyl radical, or comprises a C3 to C7 heterocycle containing a nitrogen heteroatom which is bonded to the R³ group, wherein said heterocycle can contain one or more heteroatoms independently selected from nitrogen, oxygen or sulfur, and wherein said heterocycle can be substituted with one or more independently chosen substituents.

17. A compound of claim 16, which comprises, 1-{2-[(5-

Cyclohexylidenepentylloxy)hydroxyphosphinyloxy]ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-[(5-Cyclohexylidenepentylloxy)hydroxyphosphinyloxy]ethyl}-1-

methylpiperidinium inner salt; 1-{2-[(5-Cyclohexylidenepentylloxy)hydroxyphosphinyloxy]ethyl}-1-methylmorpholinium inner salt; 1-{2-[(11-

Cyclohexylideneundecylloxy)hydroxyphosphinyloxy]ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-[(11-Cyclohexylideneundecylloxy)hydroxyphosphinyloxy]ethyl}-1-

methylpiperidinium inner salt; 1-{2-[(11-

Cyclohexylideneundecylloxy)hydroxyphosphinyloxy]ethyl}-1-methylmorpholinium inner salt; 1-{2-[(5-Adamantylidenepentylloxy)hydroxyphosphinyloxy]ethyl}-N,N,N-

trimethylammonium inner salt; 1-{2-[(5-

Adamantylidenepentyoxy)hydroxypophinyloxy]ethyl}-1-methylpiperidinium inner salt; 1-{2-[(5-Adamantylidenepentyoxy)hydroxypophinyloxy]ethyl}-1-methylmorpholinium inner salt; 1-{2-[(11-Adamantylideneundecyloxy)hydroxypophinyloxy]ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-[(11-Adamantylideneundecyloxy)hydroxypophinyloxy]ethyl}-1-methylpiperidinium inner salt; 1-{2-[(11-Adamantylideneundecyloxy)hydroxypophinyloxy]ethyl}-1-methylmorpholinium inner salt; 1-{2-[(11-Cyclohexylundecyloxy)hydroxypophinyloxy]ethyl}-N,N,N-trimethylammonium inner salt; 1-{2-[(5-Adamantylpentyoxy)hydroxypophinyloxy]ethyl}-N,N,N-trimethylammonium inner salt; or 1-{2-[(11-Adamantylundecyloxy)hydroxypophinyloxy]ethyl}-N,N,N-trimethylammonium inner salt.

18. The compound of claim 1 wherein:

A comprises R¹OYOR²;

W comprises R³Q;

X comprises oxygen;

Y residue comprises a carbocyclic ring, a substituted carbocyclic ring, a bridged tricyclic ring system, a substituted bridged tricyclic ring system or an aromatic system;

R¹ comprises a C12 to C18 alkyl group;

R² comprises a C2 saturated alkyl;

R³ comprises a C2 saturated alkyl; and

Q comprises an ammonium group, wherein said ammonium group can be independently substituted one or more times with a C1 to C6 alkyl radical, or comprises a C3 to C7 heterocycle containing a nitrogen heteroatom which is bonded to the R³ group, wherein said heterocycle can contain one or more heteroatoms independently selected from nitrogen, oxygen or sulfur, and wherein said heterocycle can be substituted with one or more independently chosen substituents.

19. The compound of claim 18 which comprises 1-{2-{[(4-(Dodecyloxy)cyclohexyloxy)ethyloxy]hydroxypophinyloxy}ethyl}-1-methylpiperidinium inner salt, 1-{2-{[(4-(Dodecyloxy)cyclohexyloxy)ethyloxy]hydroxypophinyloxy}ethyl}-1-methylmorpholinium inner salt, 1-{2-{[(4-(Tetradecyloxy)cyclohexyloxy)ethyloxy]hydroxypophinyloxy}ethyl}-1-methylpiperidinium inner salt, or 1-{2-{[(4-

(Tetradecyloxy)cyclohexyloxy]ethyloxy]hydroxyphosphinyloxy}ethyl}-1-methylmorpholinium inner salt.

20. A pharmaceutical composition comprising a compound of any of claims 1-19 and a pharmaceutically acceptable carrier.

21. A method of treating protozoal diseases comprising administering an effective amount of a compound of claim 1.

22. A method of treating protozoal diseases comprising administering an effective amount of the pharmaceutical composition of claim 20.